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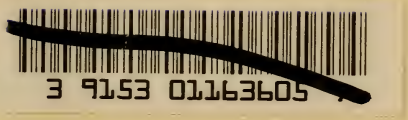

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INDIAN NOTES AND MONOGRAPHS

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A SERIES OF PUBLICATIONS RELATING TO THE AMERICAN ABORIGINES

CALENDRICAL INTERPRETATION OF A GOLDEN BREASTPLATE FROM PERU

BY

RUTH CUTTER NASH

NEW YORK
MUSEUM OF THE AMERICAN INDIAN
HEYE FOUNDATION
1939

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DRAWING OF GOLDEN BREASTPLATE LETTERED TO SHOW THE CHARACTERS AROUND THE RIM

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Miscellaneous

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RUTH CUTTER NASH

CIRCULAR breastplates of beaten gold were prized decorations among the Incas. These were sun symbols and, tradition has it, they also served as calendars.

One such breastplate, about 5¼ inches in diameter, presented more than eighty years ago to General Echenique at Cuzco, when he was president of the Republic of Peru, is now in the Museum of the American Indian, Heye Foundation, New York City. It has been referred to by the distinguished English archeologist, Sir Clements R. Markham, as "the most interesting relic of the Incas known to us."

The central portion of the plaque clearly depicts a large face; around this is a border of elaborate and intricate symbols, occurring in two series, concerning the interpretation of which archeologists have long been in disagreement. Tello[1] has inclined to a mythological significance built around the central face which he recognizes as that of a "feline"

sun deity. Bollaert[2], who discussed the plaque before the Royal Society of Antiquaries in London in 1860, regarded the border symbols as constituting a "lunar calendar or zodiac" and attempted to correlate them with the succession of monthly feasts observed by the Incas. His treatise is interesting and suggestive, but it is hardly conclusive, as there is not a single line or contour mentioned by him that pictorially or rationally correponds to the ceremonies with which he would connect it. Markham[3], Means[4], and Saville[5], all of whom have discussed the plaque at some length, agree in being noncommittal as to its exact interpretation although they incline to the general calendrical idea. Means goes so far as to say: ". . . there is some reason for thinking that the Tiahuanaco II people had a device which, although crude as compared with the Aztec calendar-stone, was more nearly a true calendar than anything else of which we know in early Peru." He calls attention to Tello's division of the border into eight sectors, and contrasts it with Saville's analysis wherein each individual pattern is isolated, and adds:

> "A fact, possibly of great hidden importance, leaps into sight when the Saville and Tello arrangements are compared; for it is clear that Tello's figures C and D both contain the designs which Saville labels E and B, and it is precisely these designs which occur *four* times instead of *twice* as all the other designs do.

"These objective facts are to us incomprehensible as yet. Nevertheless, I shall not be surprised if, at some future time, it is conclusively proven that the plaque refers to solstices and equinoxes rather than to months. At a guess, I would say that Tello's A and B figures refer to those recurrent phenomena, and that his C and D figures have some lunar significance."

After pondering these words and studying the plaque for a considerable period, the idea of proceeding to the left instead of to the right occurred to the writer. Immediately a simple, reasonable and altogether new interpretation, which won the approval of Dr. Saville, suggested itself:

FIRST: The plaque should be read sinistrally instead of dextrally. It will be recalled that the Aztec calendar circle is also properly read counter-clockwise[6].

SECOND: Reading in this direction and starting, for instance, at D, the border symbols immediately take on a pictorial value suggestive of a crescent moon, *i. e.* its first quarter. This should increase during second quarter to the appearance of a full moon at C, where is found depicted a small face with —bearing in mind a counter-clockwise progression— a diamond-shaped object seemingly entering its ear. Then at H, third quarter, when the moon should begin to wane, the diamond seems to be leaving the opposite side of the small face. At G, fourth quarter,

the moon appears gibbous while the face associated with it is tipped almost upside down. At D another crescent appears, and the series is repeated providing two lunar months, or from 56 to 60 days (or nights), for the calendrical value of the entire border.

THIRD: Eight of the border symbols are identified as numerical, those labeled E and B by Saville, and similarly designated on the accompanying plate. They are precisely those symbols which appear *four* times instead of twice.

FOURTH: These numerical glyphs are, it is believed, the first ever noted from South America. Although there were legends that prior to the introduction of the knotted cord *quipu*, by which Inca records were kept, there had anciently been graphic recordings[7] on rocks and on a parchment[8] made from plantain leaves (a member of the banana family), no deciphered corroboration has hitherto been found.

FIFTH: The system of numeration in the eight glyphs corresponds roughly to that of the Maya of Yucatan.

A detailed account of the exceptional history of this breastplate is given by Saville in his monograph published in 1921 by the Museum of the American Indian, Heye Foundation. For some years after the death of General Echenique the breastplate could

not be located by his heirs, and it was feared that it had been lost to the scientific world. But such was not the case. It was safely reposing in a private collection abroad, from which it was purchased in 1912 by Mr. George G. Heye. Saville points out that such breastplates are rarer in Peru than in Ecuador, and that they have also been found in Mexico, Costa Rica and Panama. He regards the Echenique breastplate as very ancient, assigning it to a pre-Inca period. This being so, a definite echo, or perhaps precourser, of the Maya counting system in Peru at so early a date may become an historical item of some importance.

For closer consideration, the border of the breastplate may be divided into four sectors: The upper left to be regarded as a waning moon; lower left, as a waxing moon; lower right, a waning moon; upper right, a waxing moon. In general the right half of the border repeats the left half, with but three exceptions. In all the pictorial glyphs, keeping a counter-clockwise progression in mind, it will be noted that the units comprising each symbol occur in the same sequence except in F where the sequence is reversed. Possibly the F units contain elements that must conform to the same perpendicular as that of the central face. Other exceptions will be noted in that upper left G has two tiny dots while lower right G has three, and that lower left D has three

tiny dots while upper right D has four. Perhaps these distinguish particular moons. In any event they bear out a counter-clockwise motion.

Now, if it is correct to suggest that sectors CD and GH portray pictorially the waxing and waning moon, respectively, we should expect at A some intimation of the brilliant sun-like appearance of the full moon, and at F some suggestion of the disappearance of the new moon. These are actually found.

Examining each design in detail, a pointed figure somewhat resembling a serpent head, simulating the later A-shaped Aztec design associated with the sun, is observed at A. This symbol might not improperly suggest the full moon. Glyph E, at the left, carries a tongue, a symbol also associated with the sun and with life. Beneath the tongue is a bar. This bar, by Mayan analogy, may indicate the numeral 5. The character H with a small face slightly tipped, although still perpendicular with reference to the radial axis, and with the diamond shaped object leaving the right side of the small face, may be regarded as the incipient waning of the moon. Symbol G appears to be a picture of the third-quarter, gibbous moon, and the little face associated with it is tipped until at right angles to the radial axis, a position which in many other instances of ancient indigenous art implies serious illness or impending

death, and which may in this case typify the fading away of the waning moon during its last quarter.

Character B with the bar and two large dots might indicate 5 plus 2 or a total of 7. Symbol F is interpreted as the period of the new moon, a period when the moon is so closely in line with the sun that for several days we cannot see it. It will be noted that the positions of the F figures are placed directly at the ear locations, as these organs are related to the main central face, outlined by the ladder-like notches at the edges of G and D, and the inner borders of BFE. It would seem that in this single glyph the ancient artist proves himself a master craftsman who conveys with amazing deftness and poetry the simple picture of what actually appears to him to occur in the heavens, the drifting of the moon into the sun's ear and being lost in, or immersed by, the sun until it emerges again from the opposite side of the solar disc. In symbol D the young crescent moon emerges, with her bright side turned, as it should be, toward, and with the two horns away from, the sun. The egg-shaped figure above the crescent, in this symbol, may well portray the "earth light", usually conspicuous upon the dark portion of the moon's disc when the crescent is very young. Design C with the diamond entering the small face, represents the second quarter. Glyph B completes the series, from which point it is repeated

on the other half of the disc. The diamond figures below the small faces in C and H, directed radially toward the large central face of the plaque, may serve to express full lunar brightness. They seem to present no other significance as to the progressive changes in the moon.

If the supposition is correct that the border figures represent two lunar months of 28 to 30 days each, and if numerical symbols are employed, we should expect to find 28 units at least indicated on each half of the plaque. If the value of 5 is correct for E and the value of 7 correct for B, 24 units appear on each half of the border, but we still require 4 more units for each lunar month. These present themselves conspicuously on the brow of the central face, four to the left of the medial trident and four to the right, placed just where they should be to bear out the deduction that the breastplate definitely indicates a 2-month period.

The tallying of a cycle of two months was not uncommon in ancient America. Even today the Seminole Indians[9] isolated in the Florida everglades, recount the big wind moon and the little wind moon, the big mulberry moon and the little mulberry moon; while similar bi-monthly groupings occurred in the Muscogee calendar, the Aztec calendar, and among certain Pueblo groups. Also the bi-monthly idea is borne out by the two small faces, one under

each eye of the large solar face, which could very properly designate or summarize the two lunar months figured in detail in the border.

A further and striking corroboration of our reading of the border symbols as a 60-day period, from full moon to full moon to full moon, is found in Bollaert's description of the Muisca (Chibcha) calendar. Says Bollaert[2]:

> " . . . they commenced the month from the full-moon in the sign of Ubchihica, which signified brilliant moon: counting seven days on the fingers, beginning at Ata [1], which follows Ubchihica, they found the quadrature in Cuhupcua [7]; counting from this, seven, they found the next immersion of the moon in Muyhica [4], which meant anything black; and the following day, the conjunction symbolized in Hisca [5], which, in their idea, was the union of the moon with the sun, represented the nuptials of these planets . . . : then counting eight days [beginning at Ta, 6] they found the other quadrature in Mica [3], which meant a changing object, thus denoting the continual variation of its phases."

It is obvious that if a further count of seven is made the full moon is again found at Ubchihica, 10, and the cycle is completed.

Also corroborative is the specific statement by Garcilasso[10] that in the Inca calendar "weeks were reckoned by the quarter moon", which, of course, is a seven day period. And it is also worthy of note

that Nordenskiöld[11], in his recent analyses of what appear to be astronomical *quipu* records, finds the numeral 7 recurring with curious insistence.

It should here be noted that while the sidereal lunar month is a shade less than 28 days in length, the synodic or apparent month, from new moon to new moon, is a variable period averaging 29½ days in length but differing by as much as thirteen hours. If the eight large dots on the forehead taken together with glyphs B and E closely evaluate the sidereal month (the time required for the moon to make a circuit of the heavens from a fixed star to the same star again), a modification for the apparent or synodic month of 29 to 30 days may possibly be provided for on the breastplate by the two additional large dots on each half of the central face, one at the lower inner edge of the ear, and another at the lower edge of the nose.

This question now presents itself: How is the lunar period of 60 days to be checked off, if the breastplate is to serve, in accordance with tradition, as a yearly calendar?

Curiously enough a possible answer is found in the set of seven teeth-like projections directed upward just below the mouth of the central face. If traveling up and then down the first "tooth" at the right should represent the time elapsing during the two months covered by one 60-day circuit of the

border, then the six larger projections would take care of six circuits, covering twelve lunar months or approximately 360 days in all, and the smaller seventh could be checked against the 5-day balance.

After careful consideration of all comments to date concerning this extraordinary relic from Cuzco, it is suggested, in summary: (1) That the border should be read counter-clockwise; (2) that the border symbols represent two lunar months carefully calculated; (3) that the plaque contains eight numerical glyphs—the designs labeled B and E by Saville; (4) that they are the first numerical glyphs reported from South America; (5) that these glyphs, in a style suggesting that of the Maya, indicate five units by means of a bar, single units by dots; and (6) that possibly the lower supernumerary teeth serve as a calendrical check-off for each 60-day, or bi-monthly, circuit of the border.

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